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| 10/809,312 | 03/24/2004 | Lloyd A. Greene | 070050.2897 | 6486 |

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| EXAMINER | |
|---|---|
| MCGILLEM, LAURA L | |
| **ART UNIT** | **PAPER NUMBER** |
| 1636 | |

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/809,312 | GREENE ET AL. | |
| | Examiner | Art Unit | |
| | Laura McGillem | 1636 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *21-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/15/2004*.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *3/23/06* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

It is noted that the Response to restriction requirement was submitted (2/21/06) without a signature by the Attorneys for Applicants. The response appears to be a *bone fide* attempt to respond and therefore examination of the application will proceed.

Applicant's election with traverse of Group I (claims 1-20) in the reply filed on 02/21/2006 is acknowledged. The traversal is on the ground(s) that Groups I and III are related processes and a search for Group I would encompass both differentiation of neural stem cells and inhibition of differentiation of neural stem cells. This is not found persuasive because a search for the invention of Group III, a method to suppress the differentiation of neural stem cells by adding ATF5 would involve a search for subject matter such as maintenance of the undifferentiated state of neural stem cells, and adding ATF5, not an ATF5 inhibitor, to the cells. Although the Groups are related by the function of ATF5, the methods are drawn to outcomes opposite from one another and would therefore constitute an additional burdensome search.

Claims 21-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 02/21/2006. The requirement is still deemed proper and is therefore made FINAL.

Claims 1-20 are under examination.

***Priority***

It is noted that this application receives priority to U.S. Provisional Application No. 60/460,242, filed 04/04/2003.

***Double Patenting***

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-20 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 3-22 of copending Application No. 10/971,483. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12-13 and 18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 12 and 18 are drawn to " a differentiated neural cell" and "a population of cells". The cells can be in a human and claims reading on *in vivo* human tissue are non-statutory because the claims read on part of a living human being *in situ*. Redrafting the claims to recite an "isolated differentiated neural cell" or "an isolated population of cells" would be remedial.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 6, 8-11, 15, 17 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The test of enablement is whether one skilled in the art could make and use the claimed invention from the disclosures in the application coupled with information known in the art without undue experimentation *United States v. Telectronics*, Inc., 8 USPQ2d 1217 (Fed. Cir. 1988). Whether undue experimentation is required is not based upon a single factor, but rather is a conclusion reached by weighing many factors. These

factors were outlined in *Ex parte Forman*, 230 USPQ 546 (Bd. Pat. App. & Inter. 1986) and again in *In re Wands*, 8 USPQ2d 1400 (Fed. Cir. 1988) and include the following:

**1) Scope of the claims.** The claims are drawn to a method for treating nervous tissue degeneration in a subject with a culture of differentiated neural cells that were generated by contacting a culture of neural stem or progenitor cells with an effective amount of an ATF5 inhibitor and transplanting the differentiated neural cells into the subject in an effective amount to treat the nervous tissue degeneration. The claims are also drawn to an *in vivo* method of differentiating a culture of neural stem or progenitor cells by inhibiting ATF5 in a subject, or differentiating the cells *in vitro* and transplanting them into a subject, including a human embryo subject. The scope of the claims encompasses large numbers and types of nervous tissue degeneration in the peripheral and central nervous system, including neuropathies as diverse as leprosy and Alzheimer's disease. The claims are drawn to a large group of ATF5 inhibitors including ATF5-specific antibodies, drugs, various neurotrophic factors, small interfering RNA, antisense and dominant negative gene constructs.

**2) State of the Art.** The art in the field of stem cell therapy for treatment for neurodegenerative disease is poorly developed. As noted by Pluchino et al (Brain Res. Reviews. Vol. 48, pp 211-219), such therapeutic methods are still a "baby science" with multiple art-recognized problems that must be overcome before applying widespread therapeutic applications of neural stem cell compositions to humans with neurodegenerative diseases or injury (see page 215, conclusion paragraph). In the instant case, the factors involved in the efficacy of the claimed transplant method are

poorly understood.

In addition, the art in the field of gene therapy combined with stem cell therapy is poorly developed. According to Stanworth and Newland (Clin. Med. Vol.1 (5). Pp.378-382), there are multiple issues impeding the widespread use of the combination of gene therapy and stem cells, including lack of efficiency of gene transfer and vector design as well as regulatory issues (see page 381, left column, 3rd paragraph, for example). Thomas et al (Nat. Rev. Gen. 2003, Vol. 4, pp. 346-358) teach that multiple hurdles regarding the use of viral vectors remain unresolved, including potential for immune response to the vector or the gene of interest, limited understanding of likelihood of integration into potential oncogenes, and the ability of animal studies to predict response in humans. Thomas et al disclose that human responses to viral-based therapies are more variable than those observed in animal models, and therefore, it is difficult to make solid predictions based on non-human trials (see page 356, left column, 1st full paragraph). Thomas et al teach that the predictability of individual response to inflammatory vectors remains a "substantial challenge" (see page 356, left column, 2nd paragraph, in particular).

**3) Unpredictability of the art.** The art in the field of stem cell therapy for neurodegenerative disease or trauma is extremely unpredictable. The unpredictability is manifested in the areas of: efficacy of stem cell delivery to the area of degeneration, differentiation, persistence in the diseased area and proliferation control. Pluchino et al note while totipotent embryonic stem cells have been used for transplant, there is no consistent data on the use of embryonic stem cell-derived, lineage restricted neural

cells (see page 213, 3rd paragraph). Pluchino et al teach that recent embryonic stem cell transplantation studies have resulted in formation of heterologous tissue and teratomas at the site of administration (see page 213, 4th paragraph). Pluchino et al teach that embryonic stem cell-related issues include optimal sources of cells for transplantation, optimal administration method of the stem cells, and determination of differentiation state and persistence of the transplanted cells in the area to be treated (see Pluchino, page 212, right column, last paragraph, in particular). It is unpredictable that all properties of the differentiated neural cell population would remain after transplantation because Pluchino et al teach an *in vivo* animal model example in which even adult neuronal stem cells display altered pathways of differentiation when they are transplanted into diseased animals versus healthy animals (see page 213, right column last paragraph, bridging to page 214, left column first paragraph, for example). Efficacy of therapeutic stem cell pharmaceuticals is unpredictable regarding possible migration or dispersion of the stem cells to or from the degenerating area especially for multifocal neurodegenerative diseases such as Alzheimer's disease (see page 214, left column, last paragraph, for example). In addition, any neural stem cells that are transplanted into a patient would be under the influence of a myriad number of growth factors, hormones and metabolic molecules which may influence their differentiation fate and efficacy of treatment (see page 214, right column, last paragraph, for example). Gerlach et al (J. Neurol. 2002. Vol. 249. Supplement pp. III33-III/35) cite multiple problems are related to stem cell treatment including variations in therapeutic effect, side effects and the difficulty in using fetal or stem cell tissue (see pp. III/34, column 1, paragraph 3, for

example). Unpredictability lies in the unregulated proliferative potential of neural stem cells. Clinical evidence has shown that uncontrolled neural progenitor cell growth and differentiation in the brain of a Parkinson's disease patient resulted in death. In light of this, Gerlach et al suggest therapeutic implantation of cells differentiated *in vitro* prior to implantation, but also cite the need for elimination of the possibility of uncontrolled proliferation, and further suggest long term preliminary studies in animals prior to widespread administration of neural progenitor cells in human patients (See pp III/34, column 2, paragraph 3, in particular).

The art in the area of gene therapy is highly unpredictable. This unpredictability is manifested in virtually all levels of gene therapy from gene expression *in vivo,* to the lack of suitable animal models for many human conditions. Stanworth and Newland disclose potential human therapeutics with a combination of gene therapy with stem cells, but also teach that gene therapy is hindered by multiple difficulties including vector design, efficiency of gene transfection, and lack of control of regulation of gene expression. Thomas et al describe a recent rodent trial involving retroviral-based gene therapy, which unexpectedly resulted in leukemia due to viral integration into a myeloid leukemia-related transcription factor (see page 355, left column, paragraphs 1 and 2, for example). In light of the issues related to introducing a therapeutic agent into cells using a viral vector, probability of success of a differentiated neural cell-induced to differentiate by various ATF5 inhibitors is unpredictable.

**4) Amount of guidance provided.** Applicants have disclosed general methods of administration of ATF5 inhibitors, but do not provide specific methods of

administration of specific ATF5 inhibitors for a specific nervous tissue degenerative condition. Applicants have disclosed a large number of nervous tissue degenerative conditions in the peripheral and central nervous system, but do not provide guidance on how the treatment method should be modified for any one of these diverse and complex disorders including those conditions. For example, there is no guidance to suggest how the treatment might be altered for a subject with a long-term degenerative condition (e.g. Parkinson's disease) versus a subject with a central nervous system trauma (e.g. acute brain injury). The applicant do not provide any guidance on method of transplant of the *ex vivo* differentiated cells including cell transplant into a human embryo. The specification does not address any art-recognized issues regarding gene therapy or cell transplant or any issues connected with using or treating human embryos.

**5) Working examples.** The applicants have provided no working examples of treating nervous tissue degeneration in a subject by inducing differentiation of neural progenitor or stem cells by inhibition ATF5 *in vivo*, or by inducing differentiation of neural progenitor or stem cells by inhibition ATF5 *in vitro* and then transplanting the cells into a subject. Given that applicant provides no data in an animal model that is art recognized as being predictive of similar results that would be obtained in humans, it must be considered that the skilled artisan would have had to perform trial and error experimentation in order to attempt to practice the claimed invention.

**6) Nature of the invention.** The nature of the invention encompasses *in vivo* and *ex vivo* gene therapy, stem cell therapeutics and cell transplant into a subject

including a human embryo, which are several of the most complex and unpredictable aspects of science and medicine to date.

**7) Level of skill in the art.** The level of skill in the art is low because the Applicants have not reduced the claimed method to practice.

Given the above analysis of the factors which the Courts have determined are critical in ascertaining whether a claimed invention is enabled, it must be considered that the skilled artisan would have had to have practiced undue and excessive experimentation in order to practice the claimed invention.

Claims 1-5 and 14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an *in vitro* method of promoting differentiation of a neural stem cells comprising inhibition of ATF5, does not reasonably provide enablement for an *in vivo* or *ex vivo* method of promoting differentiation of a neural stem cells comprising inhibition of ATF5 or transplanting the neural cell into a subject including humans and embryos. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

The test of enablement is whether one skilled in the art could make and use the claimed invention from the disclosures in the application coupled with information known in the art without undue experimentation *United States v. Telectronics*, Inc., 8 USPQ2d 1217 (Fed. Cir. 1988). Whether undue experimentation is required is not based upon a single factor, but rather is a conclusion reached by weighing many factors. These

factors were outlined in *Ex parte Forman*, 230 USPQ 546 (Bd. Pat. App. & Inter. 1986) and again in *In re Wands*, 8 USPQ2d 1400 (Fed. Cir. 1988) and include the following:

**1) Scope of the claims.** The claims are drawn to a method for generating a culture of differentiated neural cells by contacting a culture of neural stem or progenitor cells with an effective amount of an ATF5 inhibitor and transplanting the differentiated neural cells into a subject including a human embryo subject. The claims are also drawn to an *in vivo* method of differentiating a culture of neural stem or progenitor cells by inhibiting ATF5 in a subject. The scope of the claims encompasses large numbers and types of nervous tissue degeneration in the peripheral and central nervous system, including neuropathies as diverse as leprosy and Alzheimer's disease. The claims are drawn to a large group of ATF5 inhibitors including ATF5-specific antibodies, drugs, various neurotrophic factors, small interfering RNA, antisense and dominant negative gene constructs.

**2) State of the Art.** The art in the field of stem cell therapy for treatment for neurodegenerative disease is poorly developed. As noted by Pluchino et al (Brain Res. Reviews. Vol. 48, pp 211-219), such therapeutic methods are still a "baby science" with multiple art-recognized problems that must be overcome before applying widespread therapeutic applications of neural stem cell compositions to humans with neurodegenerative diseases or injury (see page 215, conclusion paragraph). In the instant case, the factors involved in the efficacy of the claimed transplant method are poorly understood.

The art in the field of gene therapy combined with stem cell therapy is poorly

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at the site of administration (see page 213, 4th paragraph). Pluchino et al teach that embryonic stem cell-related issues include optimal sources of cells for transplantation, optimal administration method of the stem cells, and determination of differentiation state and persistence of the transplanted cells in the area to be treated (see Pluchino, page 212, right column, last paragraph, in particular). It is unpredictable that all properties of the differentiated neural cell population would remain after transplantation because Pluchino et al teach an *in vivo* animal model example in which even adult neuronal stem cells display altered pathways of differentiation when they are transplanted into diseased animals versus healthy animals (see page 213, right column last paragraph, bridging to page 214, left column first paragraph, for example). Efficacy of therapeutic stem cell pharmaceuticals is unpredictable regarding possible migration or dispersion of the stem cells to or from the degenerating area especially for multifocal neurodegenerative diseases such as Alzheimer's disease (see page 214, left column, last paragraph, for example). In addition, any neural stem cells that are transplanted into a patient would be under the influence of a myriad number of growth factors, hormones and metabolic molecules which may influence their differentiation fate and efficacy of treatment (see page 214, right column, last paragraph, for example). Gerlach et al (J. Neurol. 2002. Vol. 249. Supplement pp. III33-III/35) cite multiple problems are related to stem cell treatment including variations in therapeutic effect, side effects and the difficulty in using fetal or stem cell tissue (see pp. III/34, column 1, paragraph 3, for example). Unpredictability lies in the unregulated proliferative potential of neural stem cells. Clinical evidence has shown that uncontrolled neural progenitor cell growth and

differentiation in the brain of a Parkinson's disease patient resulted in death. In light of this, Gerlach et al suggest therapeutic implantation of cells differentiated *in vitro* prior to implantation, but also cite the need for elimination of the possibility of uncontrolled proliferation, and further suggest long term preliminary studies in animals prior to widespread administration of neural progenitor cells in human patients (See pp III/34, column 2, paragraph 3, in particular).

The art in the area of gene therapy is highly unpredictable. This unpredictability is manifested in virtually all levels of gene therapy from gene expression *in vivo,* to the lack of suitable animal models for many human conditions. Stanworth and Newland disclose potential human therapeutics with a combination of gene therapy with stem cells, but also teach that gene therapy is hindered by multiple difficulties including vector design, efficiency of gene transfection, and lack of control of regulation of gene expression. Thomas et al describe a recent rodent trial involving retroviral-based gene therapy, which unexpectedly resulted in leukemia due to viral integration into a myeloid leukemia-related transcription factor (see page 355, left column, paragraphs 1 and 2, for example). In light of the issues related to introducing a therapeutic agent into cells using a viral vector, probability of success of a differentiated neural cell-induced to differentiate by various ATF5 inhibitors is unpredictable.

**4) Amount of guidance provided.** Applicants have disclosed general methods of administration of ATF5 inhibitors, but do not provide specific methods of administration of specific ATF5 inhibitors for a specific nervous tissue degenerative condition. Applicants have disclosed a large number of nervous tissue degenerative

conditions in the peripheral and central nervous system, but do not provide guidance on how the treatment method should be modified for any one of these diverse and complex disorders including those conditions. For example, there is no guidance to suggest how the treatment might be altered for a subject with a long-term degenerative condition (e.g. Parkinson's disease) versus a subject with a central nervous system trauma (e.g. acute brain injury). The applicant do not provide any guidance on method of transplant of the *ex vivo* differentiated cells including cell transplant into a human embryo. The specification does not address any art-recognized issues regarding gene therapy or cell transplant or any issues connected with using or treating human embryos.

Given that applicant provides no data in an animal model that is art recognized as being predictive of similar results that would be obtained in humans, it must be considered that the skilled artisan would have had to perform trial and error experimentation in order to attempt to practice the claimed invention.

**5) Working examples.** Applicants have provided an example of repression of ATF5 with ATF5 siRNA or dominant negative and acceleration of differentiation of neural progenitor cells. The Applicants have provided no working examples of treating nervous tissue degeneration in a subject by inducing differentiation of neural progenitor or stem cells by inhibition ATF5 *in vivo*, or by inducing differentiation of neural progenitor or stem cells by inhibition ATF5 *in vitro* and then transplanting the cells into a subject.

**6) Nature of the invention.** The nature of the invention encompasses *in vivo* and *ex vivo* gene therapy, stem cell therapeutics and cell transplant into a subject

including a human embryo, which are several of the most complex and unpredictable aspects of science and medicine to date.

**7) Level of skill in the art.** The level of skill in the art is low because the Applicants have not reduced the claimed *ex vivo* or *in vivo* method to practice.

Given the above analysis of the factors which the Courts have determined are critical in ascertaining whether a claimed invention is enabled, it must be considered that the skilled artisan would have had to have practiced undue and excessive experimentation in order to practice the claimed invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 7, 12, 14, 16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Angelastro et al (PNAS, 2000, of record).

Angelastro et al teach a method using pheochromocytoma (PC12) cells as a model for nerve growth factor (NGF)-promoted neural differentiation because PC12 cells can respond to NGF by changing from proliferating phenotype to a phenotype of non-proliferating, neurite-bearing neurons, (see page 10424, left column, 1st and 3rd paragraphs) which reads on PC12 cells as neural progenitor cells. Angelastro et al teach that PC12 cells are treated with recombinant NGF for nine days in order to induce

acquisition of a neural phenotype with extensive neuritogenesis (see page 10425, left column 5th paragraph), which reads on promoting differentiation of a neural progenitor cell into a differentiated neural cell. Angelastro et al further teach performing serial analysis of gene expression (SAGE) on the differentiating cells with and without NGF treatment to determine any changes in gene expression due to NGF exposure. Angelastro et al teach that ATF5/ATFx expression measurements dropped from 126 to 5 when exposed to NGF (see page 10427, Table 1, left column, second grouping), which reads on inhibiting the amount of ATF5 expression in the cells *in vitro* and promoting differentiation of a neural progenitor cell into a differentiated neuron by contacting the cell with at least one neurotrophic factor. It also reads on a method for producing differentiated neural cells by contacting a culture of neural progenitor cells with an amount of an ATF5 inhibitor that is a neurotrophic factor effective to produce differentiated neural cells and a population of differentiated neural cells.

***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura McGillem whose telephone number is (571) 272-8783. The examiner can normally be reached on M-F 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Irem Yucel can be reached on (571) 272-0781. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura McGillem, PhD
3/29/2006

DAVID GUZO
PRIMARY EXAMINER